Pre-Calculus Name_____ ID: 1

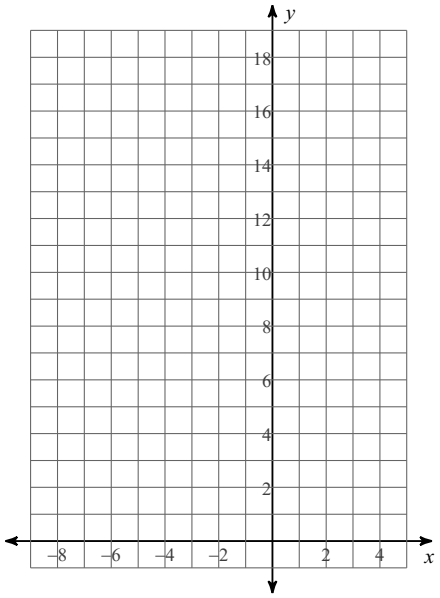


# Review of 3.1-3.3

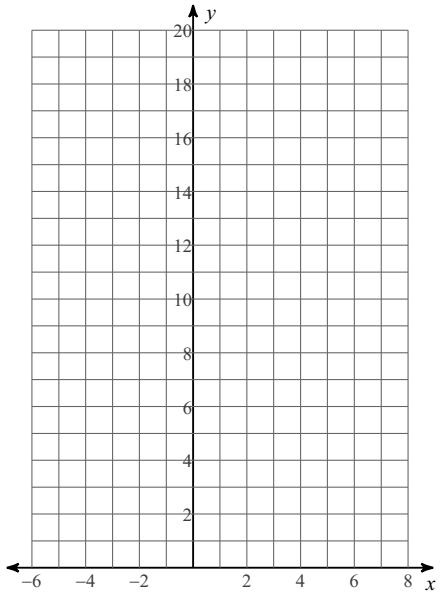
Date_____ Period____

**Sketch the graph of each function.**

1) $y = 2 \cdot 2^{x+2} - 1$




2) $y = 3 \cdot \left(\frac{1}{2}\right)^{x-1} + 2$




**Solve each equation.**

3) $6^{-3n-2} = 1$

4) $125^{-3n} \cdot \left(\frac{1}{625}\right)^{3n} = \frac{1}{125}$

5) $64^{p} = 16$

6) $\left(\frac{1}{10000}\right)^{-2p-3} \cdot 10000^{-2p} = 1000000$

**Rewrite each equation in exponential form.**

7) $\log_{17} 1 = 0$

8) $\log_{11} 121 = 2$

**Rewrite each equation in logarithmic form.**

9) $7^2 = 49$

10) $b^{a} = \frac{46}{145}$

**Evaluate each expression without a calculator.**

11) $\log_4 \frac{1}{16}$

12) $\log_5 \frac{1}{5}$

13) $\log_3 9$

14) $\log_{\frac{1}{6}} \frac{1}{36}$

**Condense each expression to a single logarithm.**

15) $\log_9 v + 2\log_9 w + \frac{\log_9 u}{3}$

16) $5\log_9 z + 5\log_9 x + 20\log_9 y$

17) $18\log_7 3 + 3\log_7 10 + 3\log_7 11$

18) $\log_8 7 + 4\log_8 5 + 4\log_8 6$

**Expand each logarithm.**

19) $\log_7 \left(3^5 \cdot 8^5 \cdot 5\right)$

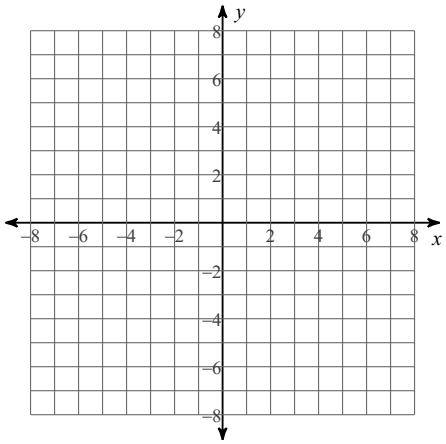
20) $\log_5 \left(w^4 \sqrt[3]{u \cdot v}\right)$

21) $\log_4 \left(xy^3 \cdot z^2\right)$

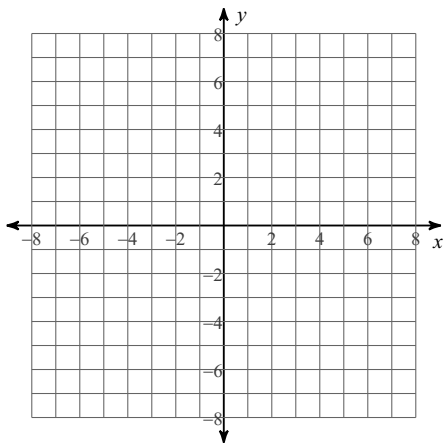
22) $\log \left(3 \cdot 7^3 \cdot 8\right)^3$

**Identify the domain and range of each. Then sketch the graph.**

23) $y = \log_5 \left(4x + 8\right) - 1$



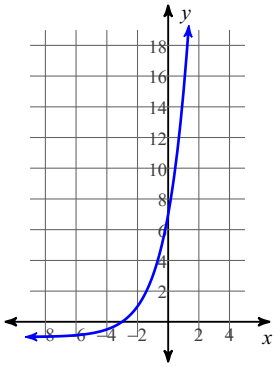

24) $y = \log_5 \left(3x - 2\right) + 1$



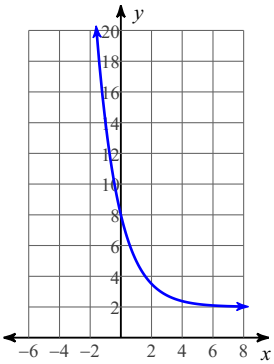

  

# Answers to Review of 3.1-3.3 (ID: 1)

1)




2)




3) $\left\{-\frac{2}{3}\right\}$

4) $\left\{\frac{1}{7}\right\}$

5) $\left\{\frac{2}{3}\right\}$

6) No solution.

7) $17^0 = 1$

8) $11^2 = 121$

9) $\log_7 49 = 2$

10) $\log_b \frac{46}{145} = a$

11) $-2$

12) $-1$

13) $2$

14) $2$

15) $\log_9 \left(vw^2 \sqrt[3]{u}\right)$

16) $\log_9 \left(z^5 y^{20} x^5\right)$

17) $\log_7 \left(11^3 \cdot 10^3 \cdot 3^{18}\right)$

18) $\log_8 \left(7 \cdot 6^4 \cdot 5^4\right)$

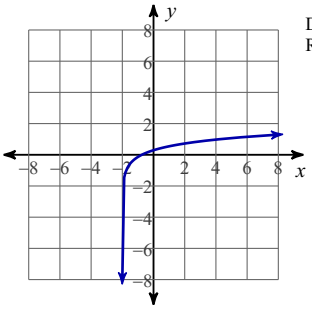
19) $5\log_7 3 + 5\log_7 8 + \log_7 5$

20) $4\log_5 w + \frac{\log_5 u}{3} + \frac{\log_5 v}{3}$

21) $\log_4 x + 3\log_4 y + 2\log_4 z$

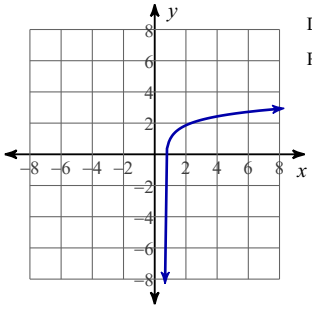
22) $3\log 3 + 9\log 7 + 3\log 8$

23)




Domain: $x > -2$
Range: All reals

24)




Domain: $x > \frac{2}{3}$
Range: All reals